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ABSTRACT

This study was designed to determine the effects of watching the television film, "The Day After," on the attitude toward nuclear warfare and arms reduction of 105 undergraduate students. Students participating chose whether or not to watch the film. All participants completed questionnaires before and after the showing of the film. Eight variables were identified as accounting for 59 percent of the variance in responses. These were attitudes toward (1) a preemptive first strike, (2) civil defense plans, (3) escalation policies, (4) retaliation policies, (5) the probability of nuclear war, (6) the impact of individuals on policy, (7) the destructiveness of nuclear warfare, and (8) the survivability of nuclear warfare. Despite preshowing consensus among nuclear freeze and prodeterrence groups that the film would lead to increased support for a slowdown in the arms race and a nuclear freeze, the attitudes of students in this survey showed little change. Only in their support for a preemptive first strike did student attitudes change in the expected direction. Their attitudes toward the other seven variables remained the same. The questionnaire used in the study is appended. (IS)

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The Day After

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The Day After: A Quasi-Experimental Study of Its Impact¹

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¹Paper presented at the annual meetings of the American Psychological
Association, Toronto, Canada, August, 1984.

Running head: The Day After

Abstract

Preshowing consensus indicated the film "The Day After" would sway viewers away from support of building military strength and toward increased support for a slowdown of the arms race. The present study was designed to determine the impact of "The Day After" using a quasi-experimental design. The subjects were volunteer undergraduate students. Ecological covariation was allowed as subjects decided to watch the movie or not to watch the movie based on their own desires and viewing patterns. A modification and expansion of the World Affairs questionnaire developed by Novak and Lerner (1966) was administered in early September and again the week following the airing of the movie. A principal components analysis with varimax rotation of the pretest uncovered eight components accounting for 59.3% of the variance. The only significant difference in change scores for viewers and nonviewers was for the "First Strike" component. Viewers of the movie expressed a significant reduction in their readiness for first use and the advantages of either the U.S. or Russia doing so. On seven point semantic differential items, the median response of viewers described "The Day After" as slightly strong, wise, fair, and successful while being moderately useful, effective, and unpleasant. It was also rated as neither positive or negative nor severe or lenient. When asked to assess their own attitude changes regarding the use of deterrence through a stronger military, responses indicated no viewer change. When asked about attitude changes toward the nuclear-freeze initiatives to reduce the arms buildup, the viewers indicated slight increases in support of arms reductions.

The Day After: A Quasi-Experimental Study of Its Impact

The issue of the possibility of nuclear war has been an everpresent concern among many members of the world population since the first atomic bomb was dropped on civilians during August of 1945. In a review of public opinion surveys conducted in the United States since 1945, Kramer, Kalick and Milburn (1983) document the cyclical nature of public attitudes and public attitude assessment through 1982. Clearly a major upswing in public opinion survey items concerning nuclear war has coincided with the U.S. failure to ratify SALT II and the election of President Reagan and his prodefense policies. Kramer, Kalick and Milburn (1983) also determined a significant correlation between their count of nuclear war survey items and a count of nuclear-related magazine articles of .51. Thus the positive association between public opinion and lay publications is strong. Psychological research and publication on nuclear war issues has correspondingly increased dramatically during the last three years as well.

Despite the importance of public opinion, lay publications and professional psychological publications on the issue of nuclear war, the presentation of the movie "The Day After" on commercial television received a disproportionate amount of attention from the media and political groups from both the left and the right. The Ground Zero organization warned viewers of its profound impact and the strong emotional reactions that may include feelings of despair, fear, or even anger. Parental discretion for children 12-15 was recommended and it was recommended that children under 12 not be allowed to watch the movie at all. The Moral Majority and other conservative groups described the

movie as propaganda with direct and indirect references to its Soviet inspired origins and/or purposes. Preshowing consensus indicated the film would sway viewers away from support of building military strength and toward increased support for a slowdown of the arms race.

The present study was designed to measure the psychological impact of airing the movie "The Day After" over commercial television. Selected hopes of the nuclear-freeze movements and fears of the pro-deterrence groups were addressed in this evaluation.

METHOD

Subjects

Subjects for this study were volunteer introduction to psychology students from a small, state-supported college in the Pacific Northwest. A total of 105 completed the pretest and posttest questionnaires during class time and received partial credit toward their grade for their participation.

Procedure

The design for this study was a nonequivalent control group quasi-experimental design as outlined by Campbell and Stanley (1963). The treatment condition involved viewing the movie, "The Day After," on November 20, 1983 over the local ABC-TV stations while subjects in the control condition did not view the movie. All subjects were exposed to the descriptions, warnings, condemnations, etc. over the media and announcements were made during class time to assure that all were aware of the specific time the movie was to be aired and its content.

Arrangements were made so that subjects not having access to a television and wishing to view the movie could do so. Subjects self-selected themselves into the treatment or control condition based on their personal preferences and viewing patterns. Care was made in explaining that viewers and nonviewers of the movie would receive the same credit toward their grade.

The pretest was a modification and expansion of the world affairs questionnaire developed by Novak and Lerner (1966) and is presented in the appendix. The pretest was administered in early September 1983 as part of a larger descriptive study investigating the structure of attitudes toward nuclear war. The implications of this early pretest of attitudes are important in terms of the design since this data was collected before the extensive coverage of the movie "The Day After" in the media.

The posttest consisted of the same modified world affairs questionnaire (MWAQ), nine semantic differential items regarding the movie "The Day After" plus self determinations of attitude change toward nuclear-freeze initiatives and toward the use of deterrence through a stronger military. The semantic differential items and the self determinations of attitude change items are also presented in the appendix. The posttest data was collected during the first class period, the week after the Sunday night airing of the movie.

RESULTS

Component Analysis of MWAQ

A principal components analysis with varimax rotation of the September administration of the 26 item MWAQ was completed using the

SPSSX statistical package. The September administration included the pretest data plus additional data from individuals from the same subject pool collected for another study. The MWAQ data based on 178 subjects uncovered eight components using the minimum eigenvalue criterion of 1.0. These eight components accounted for 59.3% of the variance. Item loadings with an absolute value greater than .30 were defined as psychometrically meaningful. The labels given to each component, the items with meaningful loadings on each component and the percentage of the variance accounted for by each component are presented in Table 1.

Insert Table 1 about here

This analysis enabled the creation of eight dependent variables for this study. One summated variable was created for each of the eight components by summing the item values with meaningful positive loadings and subtracting the item values with meaningful negative loadings. High scores on the civil defense variable indicate a positive view of the effectiveness of civil defense information and activities to reduce casualties. Values could range from 21 to -2. High scores on the escalation variable indicate a strong resolve to use military force at the highest levels to win any conflict. Values could range from 12 to a low of 3. High scores on the destructiveness variable imply an overestimation of the destructiveness of a nuclear exchange and a better world is possible after the Communist menace is ended following a nuclear war. Values could range from a high of 13 down to a -6. High scores on the probability variable indicate nuclear war is very probable

and the individual thinks about it regularly, is worried about it and has nightmares concerning nuclear war. Score values range from a high of 19 to a low of 2. The first strike variable has score values from a high of 13 to a low of -5. High scores indicate a willingness to strike the Russians first and a perception that the Russians would if they thought they would suffer little loss to themselves. The survivability variable has values ranging from 11 to -3 with high scores associated with a need for more civil defense programs for our survival along with more patriotism to challenge the real communist conspiracy. High scores on the retaliation variable (maximum of 30 and minimum of 7) indicate a greater willingness to launch a nuclear counter attack. High scores on the impact on policy variable indicate a belief that extreme impact can be made on policy by individuals and that nuclear war is less likely to occur. Values range from a high of 8 and a low of -5.

One concern in a nonequivalent control group design is the issue of selection and its biasing effect. Separate t tests were conducted for each of the eight pretest variables to see if the viewer group (n=83) and the nonviewer group (n=23) differed initially. The results presented in Table 2 revealed no significant differences.

Insert Table 2 about here

Changes After Viewing "The Day After"

For each subject change scores for each of the eight variables were created by subtracting the posttest score from the pretest score.

Separate t tests were conducted for each of the eight change variables

to determine the impact of the movie, "The Day After." The results of these analyses are presented in Table 3. Only one t value reached significance and this involved the first strike variable. Viewers of the movie expressed a significant reduction in their readiness for first use and the advantages of either the U.S. or the Soviets doing so.

Insert Table 3 about here

Viewers of "The Day After" were also asked to assess their own attitude changes toward the nuclear-freeze initiatives and toward the use of deterrence. When asked if their attitudes toward the nuclear freeze initiatives to reduce the nuclear arms buildup to prevent nuclear war had been changed by the movie, subjects responded on a seven point scale with more supportive of the nuclear freeze, a 7 response and less supportive of the nuclear freeze, a 1 response. A total of 65.9% indicated a change toward more support for nuclear-freeze initiatives, 18.7% indicated no change and 15.4% indicated being less supportive of nuclear-freeze initiatives after viewing the movie. The mode response was 6, the median response was 5 and the mean response was 5.1 with a standard deviation of 1.66. When asked if their attitudes toward the use of deterrence through a stronger military strength to prevent nuclear war had been changed, subjects responded on a seven point scale with more supportive of deterrence a 7 response and less supportive of deterrence a 1 response. A total of 41.1% indicated a change toward more support for deterrence through military strength, 40.0% indicated no change, and 18.9% indicated being less supportive of deterrence after

viewing the movie. The mode of 4, the median of 4.0 and the mean of 4.41 (standard deviation = 1.38) are all within the no change range.

Semantic Differential Rating of "The Day After"

All subjects who viewed "The Day After" rated the movie using the semantic differential along nine pairs of bipolar adjectives. The objectives and the descriptive statistics for each of the nine pairs are presented in Table 4.

Insert Table 4 about here

Viewers rated "The Day After" as being neither positive or negative nor lenient or severe according to mode, median and mean responses. While the modal response indicated that the movie was neither fair nor unfair, the median and mean values indicate it was considered slightly fair. Median and mean values indicate viewers felt the movie was slightly strong, wise and successful with the mode responses being stronger in the direction of these adjectives. The median and mode responses indicate a rating of the movie as being moderately useful, and moderately effective. The median and mean responses indicate a moderately unpleasant rating with a modal attitude of extreme unpleasantness.

DISCUSSION

While some of the hopes of the nuclear-freeze movement and the fears of the prodeterrance through a strong military advocates were

supported by the findings of this study, "The Day After" does not appear to have had the profound impact on the college population that preshowing consensus indicated. Viewers were less likely to support a preemptive first strike by the U.S. and less likely to expect one by the Soviets. While this is an important change in the expected direction, the lack of significant change across the other seven variables is noteworthy. Attitudes toward civil defense plans, escalation and retaliation policies, the probability of nuclear war, impact of individuals on policy, the destructiveness and the survivability of nuclear war did not change for this group of college students. These nonsignificant changes should be a disappointment to the nuclear-freeze groups and a relief to the prodeterrence advocates.

Preshowing consensus among nuclear-freeze and prodeterrence groups indicated "The Day After" would sway viewers toward increased support for a slowdown in the arms race and a nuclear-freeze. About two of three viewers concurred that they did perceive themselves changing toward a stance closer to the freeze initiatives. However, at the same time viewers were not swayed away from a stance supportive of a policy of deterrence through military strength. In fact 41.1% reported becoming more supportive of the policy of deterrence. When compared with the 65.9% who became more supportive of the freeze, it seems that some subjects became more supportive of both positions. Either these individuals do not understand the two positions or do not perceive them as antagonistic in the same manner as their respective political advocates.

Over the short run, "The Day After" made college student viewers less supportive of a first strike as advantageous to either side in a

nuclear exchange and somewhat more supportive of nuclear freeze initiatives. The impact of the movie on college students did not live up to all the preshowing expectations.

Explanations of the limited impact of the movie are numerous. The expectations created by the media and the understatement of the effects of nuclear war in the movie may have resulted in a relief and a reduction in dissonance instead of its maintenance or an increase to precipitate change. The lack of specific guidelines in the movie regarding the prevention of nuclear war also could have limited the impact since the movie did not educate the college viewers. The poor acting and technical quality of the movie combined with an audience that has been exposed to disaster movie after disaster movie may have resulted in a cinematic numbing apart from a nuclear numbing.

"The Day After" was an event shared by many throughout the United States and the world. Its portrayal of a nuclear war did change a few important attitudes of college students toward nuclear war immediately after viewing. The long term impact of the movie still needs to be assessed. While commercial television can be an effective means to change attitudes, its limitations in doing so with movies like "The Day After" were demonstrated. "The Day After" was one small chapter in the nuclear-freeze/strong military debate which did not warrant the exorbitant attention given to it.

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Table 1

Principal Component Analysis of MWAQ

Component Label	Items With Meaningful Loadings	Percentage of Variance Explained
1. Civil Defense	7, 9, 11, 12, 23	14.4
2. Escalation	18, 19, 20	8.8
3. Destructiveness	3, 4, 6, 17	7.6
4. Probability	1, 13, 14, 15	7.1
5. First Strike	5, 8, 17, 18, 21	6.5
6. Survivability	12, 21, 22, 23	5.4
7. Retaliation	9, 10, 12, 14, 18	4.8
8. Impact on Policy	1, 2, 16	4.6

Table 2

Pretest Scores for MWAQ Components

Component	<u>Day After Viewers</u>		<u>Nonviewers</u>		t value
	Mean	Std.Dev.	Mean	Std.Dev.	
Civil Defense	9.63	4.35	11.10	4.12	1.39
Escalation	6.82	2.32	7.14	1.94	0.59
Destructiveness	-1.60	3.19	-0.86	2.7	0.99
Probability	7.89	2.57	8.13	2.62	0.40
First Strike	2.75	3.08	2.68	3.12	-0.09
Survivability	6.28	2.30	6.23	3.25	-0.07
Retaliation	14.55	2.57	14.43	2.46	-0.19
Impact on Policy	0.87	2.27	0.64	1.59	-0.45

Table 3

Change Scores for MWAQ Components

Component	<u>Day After Viewers</u>		<u>Nonviewers</u>		t value
	Mean	Std.Dev.	Mean	Std.Dev.	
Civil Defense	-0.28	4.4	1.38	3.4	1.70
Escalation	0.86	1.7	0.28	2.1	-1.33
Destructiveness	1.41	2.8	0.50	2.0	-1.41
Probability	-0.38	2.4	-0.32	2.1	0.11
First Strike	0.66	2.5	-0.82	2.8	-2.43*
Survivability	0.07	2.4	0.10	2.4	0.04
Retaliation	0.20	2.5	0.05	2.2	-0.25
Impact on Policy	0.00	2.1	0.32	2.1	0.64

*Significant at the .05 probability level.

Table 4

Semantic Differential Breakdown Toward "The Day After"

Bipolar Adjectives		Mode	Median	Mean	Std. Dev.
(7)	(1)				
strong	weak	6.0	5.0	4.81	1.69
wise	foolish	6.0	5.0	5.13	1.54
useful	useless	6.0	6.0	5.22	1.57
effective	ineffective	6.0	6.0	5.18	1.65
pleasant	unpleasant	1.0	2.0	2.45	1.32
positive	negative	4.0	4.0	4.09	1.81
fair	unfair	4.0	5.0	4.89	1.47
lenient	severe	4.0	4.0	4.22	1.75
successful	unsuccessful	7.0	5.0	4.90	1.71

APPENDIX

Listed below are a number of questions about world affairs. Read each item and decide on the most accurate answer in your opinion. (In each question, circle the one alternative that comes closest to the most accurate answer.)

1. Considering all factors, nuclear war with the Communists is _____.

almost	probably	slightly	slightly	probably will	definitely will
certain will occur	likely	unlikely	not occur	not occur	
2. The most accurate guess is that if a nuclear war does occur it will happen within the next _____.

five	ten	twenty	thirty	fifty	sixty or more
years	years	years	years	years	years
3. If a nuclear war were to occur, the outcome would probably be _____ than most people expect.

much more	somewhat more	slightly more	slightly less	somewhat less	much less
disasterous	disasterous	disasterous	disasterous	disasterous	disasterous
4. Most people tend to _____ the destructive effects of nuclear weapons.

greatly	moderately	slightly	slightly	moderately	greatly
overestimate	overestimate	underestimate	underestimate	underestimate	underestimate
5. How likely is it that the Russians would launch a nuclear attack against the U.S. if they believed they could do so and suffer little loss to themselves?

certain	probably	slightly	slightly	probably	definitely
	the case	likely	unlikely	not the case	not the case
6. If there were a nuclear war with the Communists, _____ (circle only one)
 - a. life will be much better--especially with the Communist menace ended.
 - b. life will be somewhat better--people will work hard and rebuild our country.
 - c. life will be much the same as it is today--we will go to school, work, have dates, etc.
 - d. there will be some changes--people will have to struggle again.
 - e. the widespread damage will mean that almost everyone will be faced with poverty and disease.
 - f. almost everything will be different--so many people will be killed and maimed that life will be closer to the jungle than anything we know today.
7. If we prepare now with shelters, etc., we may be able to save a majority of those lives that would have been lost in a nuclear war.

agree	agree	agree	disagree	disagree	disagree
very much	somewhat	a little	a little	somewhat	very much
8. From an objective point of view, it would probably be to the advantage of the free world if the U.S. launched a preventive nuclear attack on Russian rocket bases.

agree	agree	agree	disagree	disagree	disagree
very much	somewhat	a little	a little	somewhat	very much
9. When I read about ways to prepare for the possibility of a nuclear attack, I tend to become _____.

greatly	moderately	slightly	slightly	moderately	extremely
reassured	reassured	reassured	uncomfortable	uncomfortable	uncomfortable

10. Under what conditions might it be advisable for the United States to launch a nuclear counter attack against Russia? (Check those which make it advisable)
- ☐ if West Germany were invaded by East German troops.
☐ if the Communist Chinese attacked Formosa.
☐ if Russia launched a non-nuclear attack on England.
☐ if Russian, or Russian-led, troops invaded a South American country.
☐ if Russian, or Russian-led, troops invaded Canada.
☐ if Russia launched a nuclear attack on England.
☐ if Russia launched a nuclear attack on Canada.
11. A private bomb shelter would be worth its cost in providing security in the world today.
- ☐ agree very much ☐ agree somewhat ☐ agree a little ☐ disagree a little ☐ disagree somewhat ☐ disagree very much
12. How valuable would it be for you to know more about the effects of a nuclear blast and fallout on a civilian population?
- ☐ very necessary ☐ moderately necessary ☐ slightly necessary ☐ slightly unnecessary ☐ moderately unnecessary ☐ extremely unnecessary
13. How often do you think about the possibility of nuclear war?
- ☐ always think about it ☐ about once a day on the average ☐ about once a week on the average ☐ about once a month on the average ☐ about once a year on the average ☐ rarely think about it
14. When you think about nuclear war, how worried do you generally become?
- ☐ not worried at all ☐ somewhat worried ☐ moderately worried ☐ extremely worried
15. How often have you had a nightmare or unpleasant dream about an atomic explosion or nuclear war?
- ☐ Never ☐ Once or twice ☐ Several times ☐ Often ☐ Regularly
16. What chances do you think individuals have in making an impact on policy concerning nuclear war?
- ☐ No impact ☐ Some impact ☐ Moderate impact ☐ Extreme impact
17. Should the President of the United States discuss arms control issues with the Soviet Premier?
- ☐ Yes ☐ Only if a true chance for agreement exists. ☐ No
18. We should be ready to use nuclear weapons against any country that threatens our national interest.
- ☐ strongly agree ☐ partially agree ☐ partially disagree ☐ strongly disagree
19. If this country is involved in a war, we should not worry about civilian casualties, but should use all possible force necessary to win.
- ☐ strongly agree ☐ partially agree ☐ partially disagree ☐ strongly disagree
20. When a country gets involved in a war, the only thing to do is to use all-out military force against the opponent.
- ☐ strongly agree ☐ partially agree ☐ partially disagree ☐ strongly disagree

21. The communist conspiracy is a real threat to our country.

strongly agree	partially agree	partially disagree	strongly disagree
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22. What we need in this country is more patriotism.

strongly agree	partially agree	partially disagree	strongly disagree
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23. Do you think a stepped-up civil defense program would increase your chances of surviving a nuclear attack?

a great deal	somewhat	not very much	not at all
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For each of the following word pairs, place an X in the appropriate space which reflects your views of the movie, "The Day After".

"The Day After"

Weak	_____	_____	_____	_____	_____	_____	_____	Strong
Wise	_____	_____	_____	_____	_____	_____	_____	Foolish
Useless	_____	_____	_____	_____	_____	_____	_____	Useful
Effective	_____	_____	_____	_____	_____	_____	_____	Ineffective
Pleasant	_____	_____	_____	_____	_____	_____	_____	Unpleasant
Negative	_____	_____	_____	_____	_____	_____	_____	Positive
Unfair	_____	_____	_____	_____	_____	_____	_____	Fair
Lenient	_____	_____	_____	_____	_____	_____	_____	Severe
Successful	_____	_____	_____	_____	_____	_____	_____	Unsuccessful

Have your attitudes towards the use of deterrence through a stronger military strength to prevent nuclear war been changed by the movie? Circle the appropriate number.

More supportive of Deterrence Through Military Strength	7	6	5	4	3	2	1	Less supportive of Deterrence Through Military Strength
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Have your attitudes toward the nuclear-freeze initiatives to reduce the nuclear arms buildup to prevent nuclear war been changed by the movie? Circle the appropriate number.

More supportive of the Nuclear Freeze	7	6	5	4	3	2	1	Less supportive of the Nuclear Freeze
--	---	---	---	---	---	---	---	--